REMARKS/ARGUMENTS

Certified copies of the three British priority documents are enclosed.

Claims 1-10 remain in this application, without amendment.

The claimed invention is directed to an air conditioning system for an aircraft in which hot air from the aircraft is cooled and returned to the aircraft. The hot air from the aircraft may be from the cabin or from avionics, or from both the cabin and avionics. Pressurized warm air is cooled through expansion and mixed with the cabin or avionics air prior to recirculating the air in the aircraft. However, before the warm pressurized air is cooled through expansion, some of the heat from the hot air which is to be cooled is transferred through a heat exchanger to the pressurized warm air.

Applicants respectfully traverse the rejection of claims 1 and 4 under 35 U.S.C. §102(b) as being anticipated by Farrington patent 5,967,461. Farrington does not teach the claimed air conditioning system claim 1 or the method of claim 4. The office action refers to the exhaust cabin air passing through the heat exchanger 102 of Fig. 3 as cooling compressed air. However, this is not applicants' claimed invention. Applicants' system does not use cabin air to cool compressed air and then vent the cabin air to atmosphere as in Farrington. In applicant's system, the cabin air is hotter than the warm pressurized air. Some heat from the hot cabin or avionics air is transferred through a heat exchanger to the warm pressurized air. Thus, the heat flow is in the opposite flow direction from Farrington. The partially cooled cabin air is subsequently mixed with cooler air and returned to the cabin, where Farrington does not return any of its exhausted cabin air. Consequently, claims 1 and 4 are not anticipated by Farrington and the rejection under 35 U.S.C. §102(b) should be withdrawn.

Applicants respectfully traverse the rejection of claims 1, 2, 4, 5, 9 and 10 under 35 U.S.C. §102(b) as being anticipated by Coleman et al. patent 5,860,283. Coleman et al. teaches an arrangement in which there is a closed loop including a compressor, a turbine, and avionics heat load. An inter-cooler provides coolant from a

power turbine. After the coolant is used in the inter-cooler, it is provided to a pre-cooler before being ejected overboard. Some air from the cabin may be used in the inter-cooler before being fed to the pre-cooler and passed overboard.

The office action states that Coleman et al. "show an air cycle cooling system which uses an intercooler 20 which cools air from the compressor using air from the cabin 28 which is going to be exhausted." This is not how applicants claimed system works. Rather than using cabin air to cool air from the compressor, applicants transfer heat from the cabin air to warm pressurized air in order to partially cool the cabin air. After the heat is transferred to the warm pressurized air, this air is cooled through expansion and is then mixed with the partially cooled cabin air for returning to the cabin. Since Coleman et al. does not partially cool the hot air withdrawn from the cabin or from avionics, mix it with cooler air, and return it to the cabin, claims 1, 2, 4, 5,9 and 10 are not anticipated by and are not obvious over Coleman et al. and the rejection under 35 U.S.C. §102(b) should be withdrawn.

Applicants respectfully traverse the rejection of claims 1-10 under 35 U.S.C. §102(b) as being anticipated by British patent 2087540. This patent does not disclose providing coolant to a downstream turbine and then mixing the now very cold coolant with recirculating cabin air. The cabin air in the British patent is not recirculated. In describing the Fig. 2 embodiment, the patent specifically states that pressurized air from a source such as an aircraft engine bleed passes through a precooler 40 to the inlet of a compressor 33 which is driven by a turbine 32. From the compressor 33, the pressurized air flows sequentially through an intercooler 35, a heat exchanger 36 and a reheater 37 to an inlet to the turbine 32. The outlet from the turbine 32 is connected through a conduit arrangement 41 to the coolant sides of a condenser 38 and a heat exchanger 42 and thence to a plurality of compartments which may include a cabin 43 and equipment bays 44 and 45. The air exhausted from the cabin and the equipment bays passes through the coolant sides of a heat exchanger 46 and the regenerative heat exchanger 36 and is vented overboard. (see page 2, lines 90-101) The aircraft also

includes a heat load 51 which is cooled by a closed coolant circuit 50. Heat is transferred from coolant in the circuit 50 via the heat exchanger 46 to the exhausted cabin and equipment bay air which is subsequently exhausted overboard.

From the above description of the operation of the British patent, it is clear that this is not a recirculation system of the type claimed. There is no suggestion in the patent of transferring heat from exhausted cabin air and or avionics cooling air to pressurized warm air, cooling the pressurized warm air through expansion, and mixing the cooled air with the exhausted cabin air and/or avionics air prior to recirculating the exhausted air back through the cabin or avionics. Consequently, the claims are not anticipated by the British patent and the rejection under 35 U.S.C. §102(b) should be withdrawn.

With respect to the double patenting rejection of claims 1 and 4, it is submitted that the invention of these claims is distinct from the invention claimed in patent 6,883,335. However, since a patent on the present application and the '335 patent would expire close to one another, a terminal disclaimer is enclosed. In view of the terminal disclaimer, withdrawal of the double patenting rejection is requested.

Please extend the time for responding to the office action to the mailing date of this response. A petition for an extension of time and authorization to charge the extension fee to the deposit account of MacMillan, Sobanski & Todd, LLC is enclosed.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Enclosure

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